

Headquarters U.S. Air Force

Integrity - Service - Excellence

Global Strike CONOPS/ Long-Range Strike “Pizza Lunch” Briefing 10 June 2005



U.S. AIR FORCE

UNCLASSIFIED

**Col David A.
Lengyel**

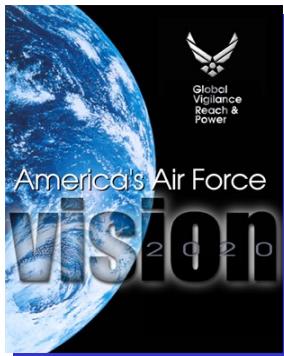
HO USAF/XOX-GS
Overall classification of
this briefing is
UNCLASSIFIED



U.S. AIR FORCE

UNCLASSIFIED

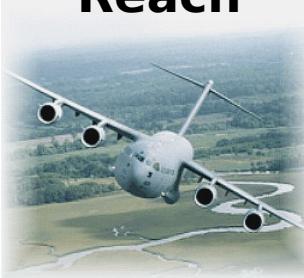
AF CONOPS Construct



Global
Power



Global
Reach



Global
Vigilanc
e

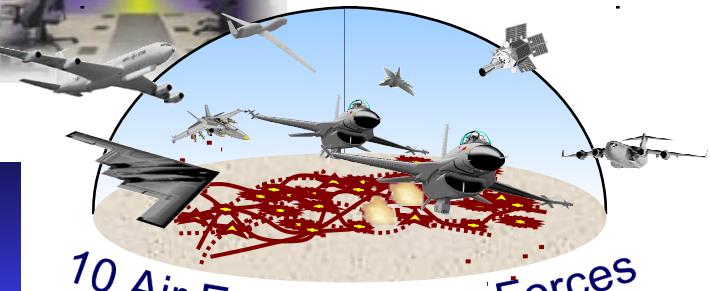


Strategy

Expeditionary Air and Space Force (EAF) is the USAF foundation to prepare, respond, deploy, and employ for any task

Tasks

10 Air Expeditionary Forces



Capabilities Review & Risk Assessment

Homelan
d
Security

Global
Strike
CONOPS

Global
Mobility
CONOPS

Global
Persiste
nt
Attack
CONOPS

Nuclear
Respon
se
CONOPS

Space &
C4ISR
CONOPS

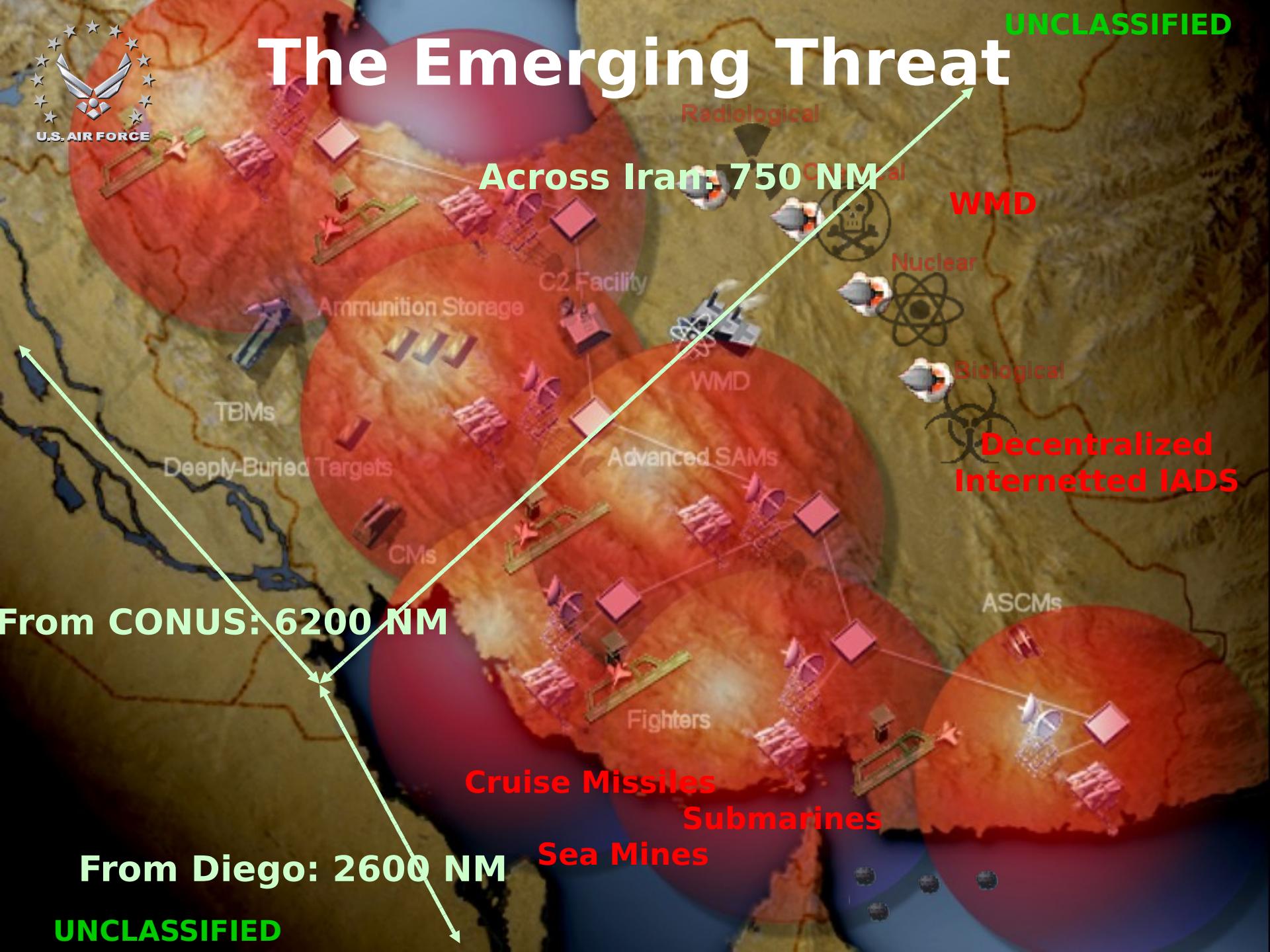
CONOPS

Agile Combat Support CONOPS



UNCLASSIFIED

The Emerging Threat



UNCLASSIFIED

Joint Force Commander Needs

Complete battlespace awareness

Ability to command and control global forces

Surprise

Freedom of maneuver 24 / 7

Robust, information dominance

Ability to rapidly mass effects when and where
needed

Force Protection against enemy WMD and precision

Flexible response options

Joint CAF Capabilities

Persistent multi-spectral, fused sensors

Global Command and Control (C2)

24 / 7 Stealth

Horizontally integrated system of systems

Range, payload, speed, maneuverability

Multi-mission, interoperable

Robust all-weather delivery

Increased standoff

Consistent, reliable precision

Support to widely dispersed maneuver forces



U.S. AIR FORCE

UNCLASSIFIED

The Problem

- Current power projection strategy depends on US forces having sufficient time to build up in-theater, and on their gaining rapid access to theater bases, ports, airfields and littoral waters

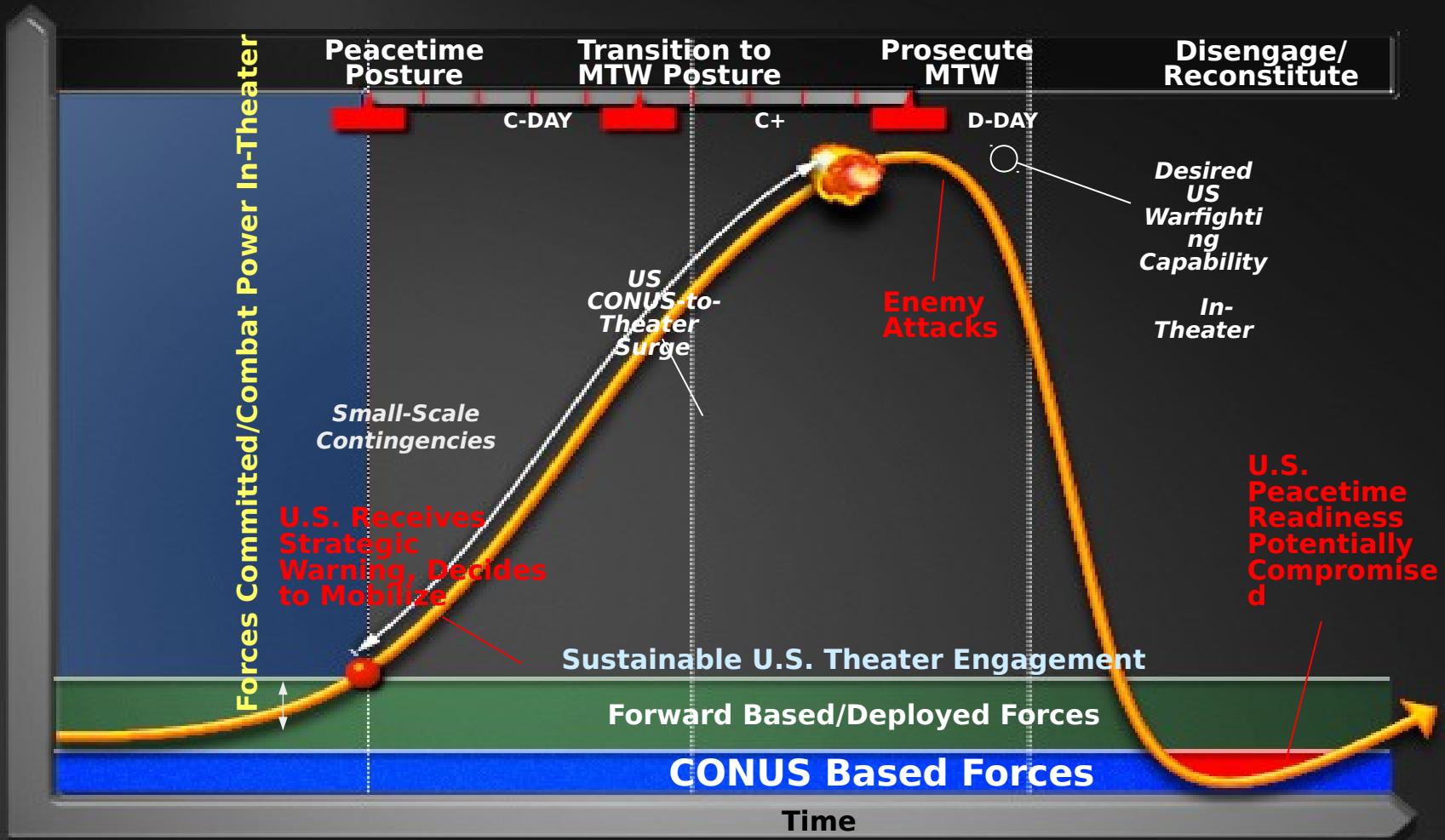
- Potential adversaries recognize and are actively preparing to exploit this Achilles Heel

“Future adversaries could have the means to render ineffective much of our current ability to project military power overseas.”

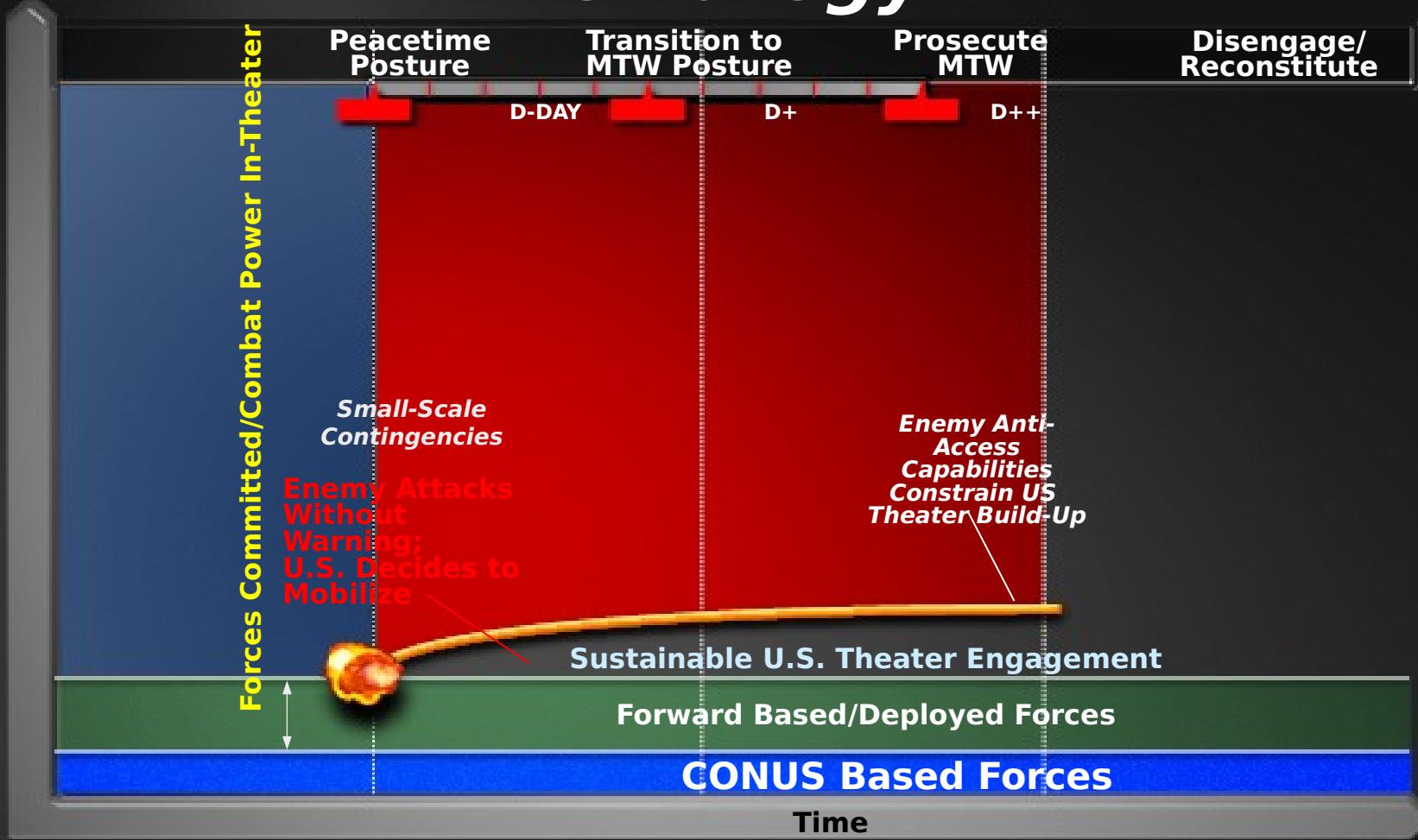
“Potential adversaries are acquiring weapons and developing strategies aimed at denying U.S. forces access to critical theaters of operations in a crisis.”

“U.S. forces must be capable of sustaining power projection in anti-access environments” Defense Review 2001

Current US Power Projection Strategy



Potential Impact of Time & Access Challenges on U.S. Strategy





U.S. AIR FORCE

UNCLASSIFIED

The Challenge

“We must radically alter the way in which we project power...”

“Our ability to project combat power anywhere in the world will require new...operational concepts... a much smaller force ‘footprint,’ and an enhanced military responsiveness distinguished by its increased range of employment and resulting in reduced exposure of our forces.”

National Defense Panel, 1997

“U.S. forces must have the ability to achieve a wide range of offensive and defensive effects in the face of determined adversaries armed with asymmetric weapons of war seeking to deny access to U.S. forces.”

“Forward deterrence in the future will be determined less by the number of troops, ships, or aircraft within a theater, than by the strategic and operational effects that U.S. forces and capabilities can achieve almost instantly both from within as well as from beyond a theater.”



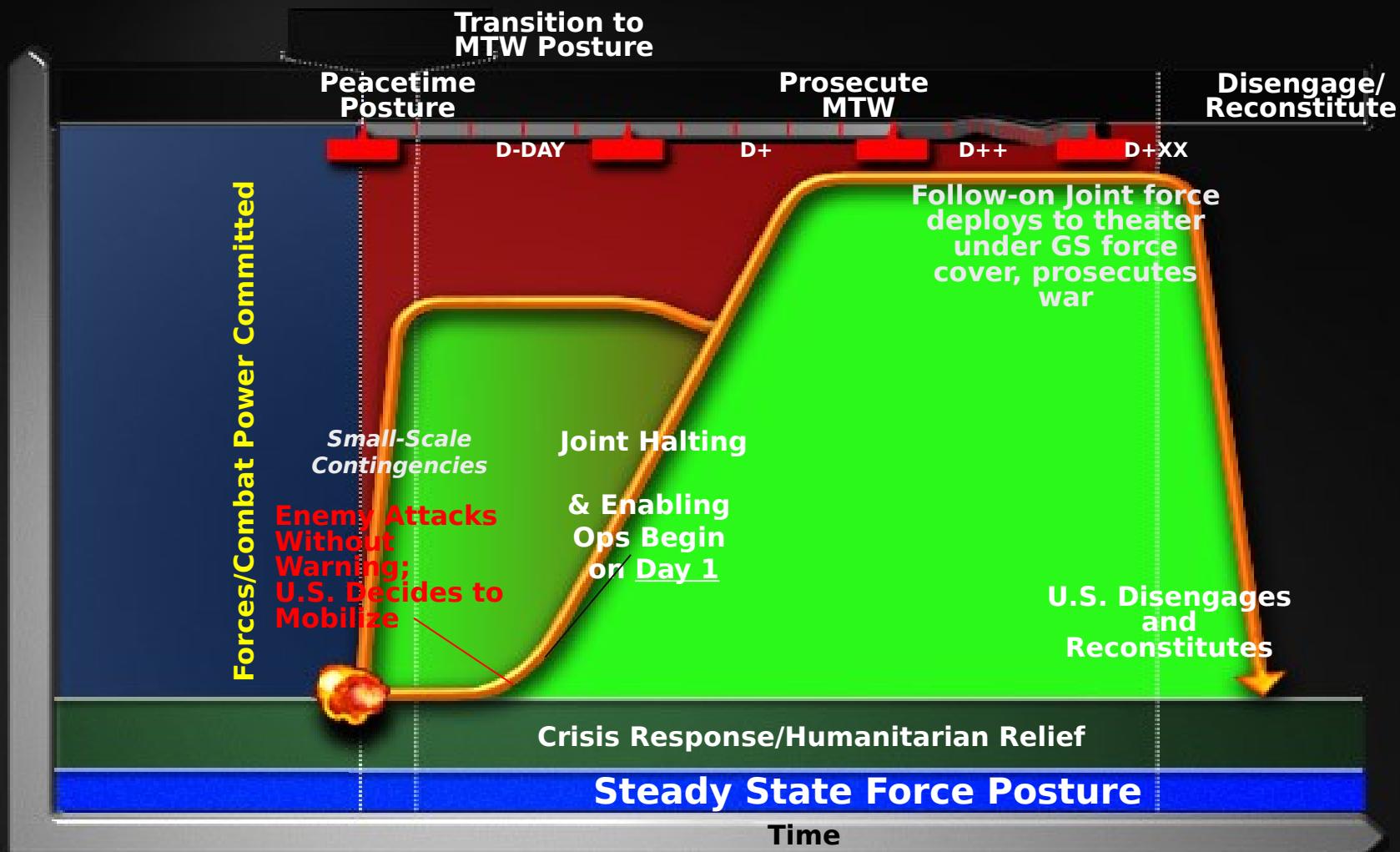
U.S. AIR FORCE

UNCLASSIFIED

Meeting the Challenge: GS CONOPS

- Precision, long-range, quick-reaction air and space-based strike platforms that can operate in an anti-access environment to facilitate early and rapid-response strike operations
- Networked Command, Control, Computers, Communication, Intelligence, Surveillance, and Reconnaissance (C4ISR) for targeting, battle management, and damage assessment
- Early-entry land forces/SOF to protect ports and airfields, and to help find, fix, track, and destroy targets
- Information operations (IO)- The application and integration of non-kinetic capabilities in the pre-crisis, conflict, and reconstitution phases of war within the cyber, electromagnetic, and cognitive domains

GS Ensures Immediate, Robust Initial Response





U.S. AIR FORCE

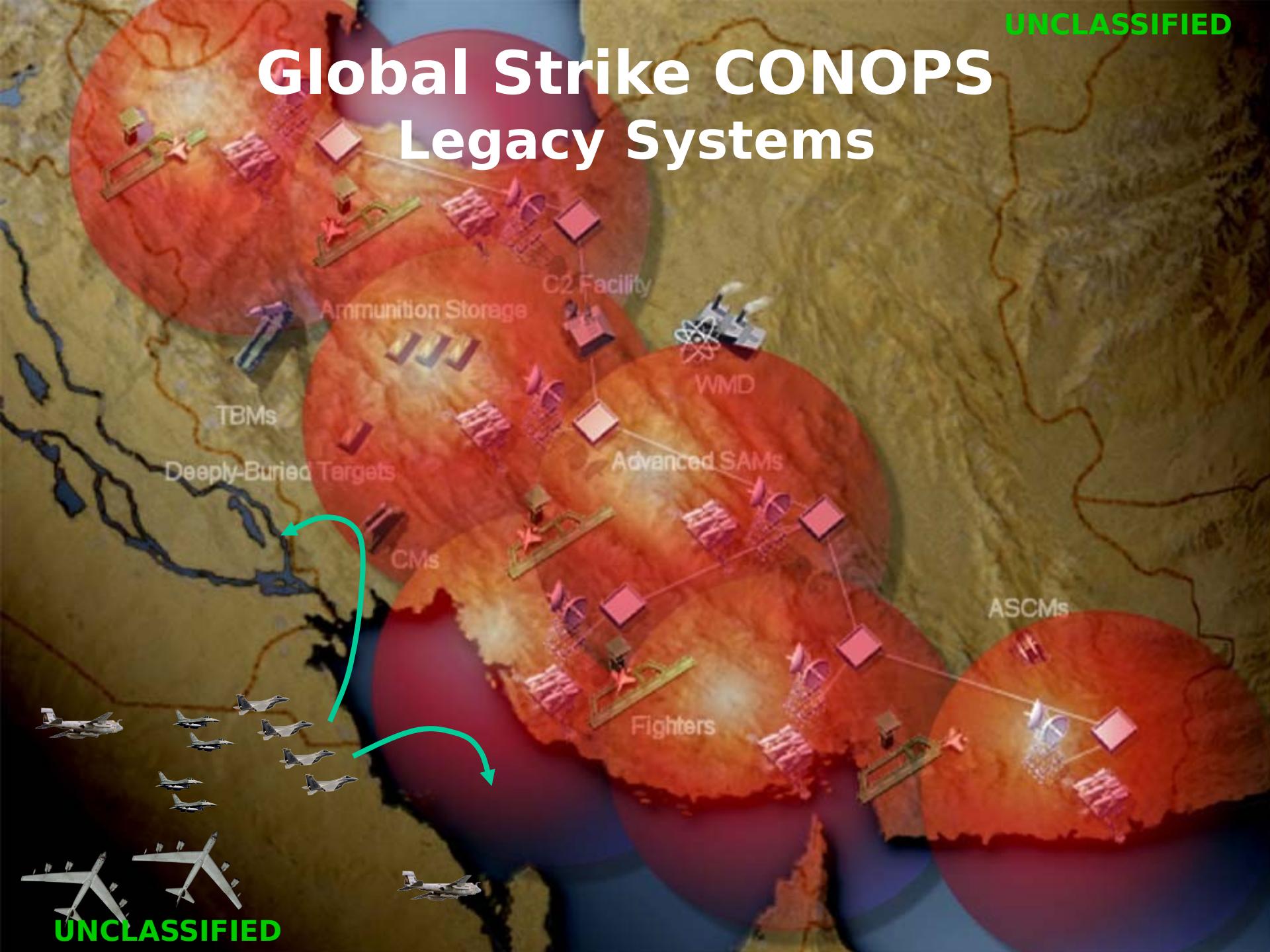
UNCLASSIFIED

GS CONOPS Desired

- **ACCESS:** Gain and Maintain battlespace access
- **RAPID GLOBAL RESPONSE:**
 - Quickly Neutralize the adversary's key high-value targets

Leverage the Nation's Asymmetric Technological Advantages —Range, Stealth, Standoff, Precision, Information, and Space—to Rapidly Create War-Winning Effects

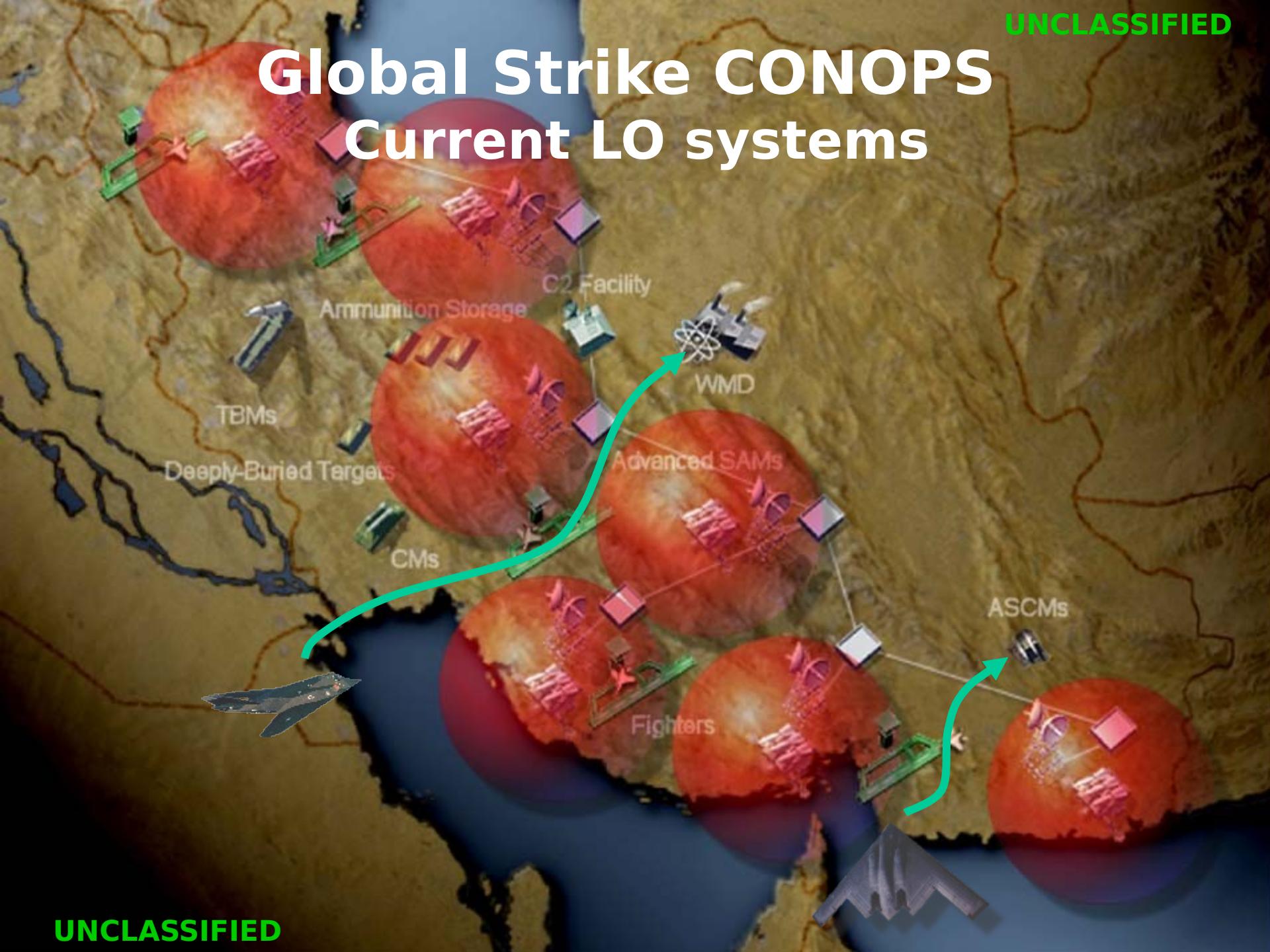
Global Strike CONOPS Legacy Systems



UNCLASSIFIED

Global Strike CONOPS

Current LO systems



Global Strike CONOPS

Emerging Capabilities



Stealth, supercruise, and high altitude provide reliable threat avoidance



U.S. AIR FORCE

UNCLASSIFIED

Exploitation

- By defeating adversary anti-access capabilities, GS will allow joint force commanders to deploy persistent follow-on ISR and joint forces closer to the threat to achieve a wide range of effects in the first days of conflict. The GS requires the capability to:
 - Continue to roll back the range and methods by which the enemy can attempt to deny access
 - Allow vulnerable systems such as tankers, BMD, ISR and C2 platforms to move within effective range, and allow non-stealthy strike systems to engage a wide range of targets
 - Integrate additional joint forces into operations as they become available and survivable
 - Open additional bases to support follow-on forces
 - Deploy robust, deployable theater missile defenses to defend against theater ballistic and cruise missile “leakers”
 - Continue operations as part of follow-on joint task forces
 - Reconstitute GS capabilities



U.S. AIR FORCE

UNCLASSIFIED

Long Range Strike (LRS)

- **Definition:** The capability to achieve a desired effect(s) rapidly and/or persistently, on any target, in any environment, anywhere, at any time.
- Effects wide-ranging ... from strategic nuclear deterrence to win decisively via theater persistent/responsive attack
 - Dissuade adversaries
 - Deter aggression
 - Defeat swiftly - win decisively if deterrence fails
 - Deny sanctuary ... GWOT
 - Assure friends and allies

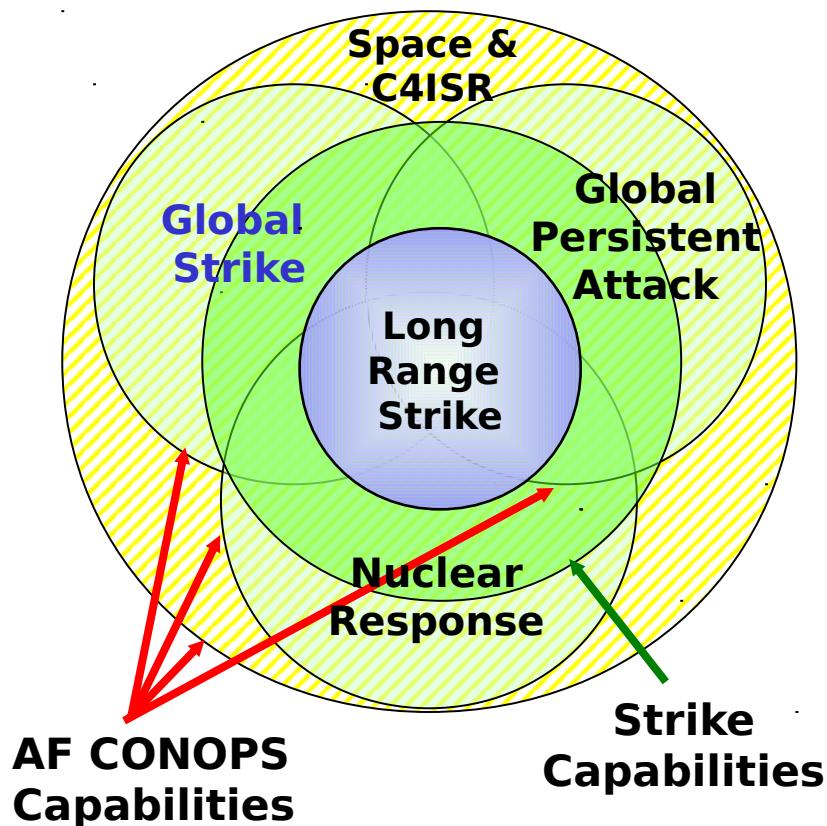


U.S. AIR FORCE

UNCLASSIFIED

CONOPS and LRS

- Space & C4ISR CONOPS enables force application
- GS, GPA, and NR CONOPS demand LRS capability



Long Range Strike (LRS) is a set of integrated capabilities that enable rapid and precise delivery, at up to inter-continental ranges, of militarily decisive force to neutralize targets as required by the Regional Combatant



U.S. AIR FORCE

UNCLASSIFIED

GS Capabilities

- **Secure, survivable, persistent, global ISR**
- **Predictive battlespace awareness (PBA)**
- **Robust, deployable, global C2**
- **Over-the-horizon, LPI communications**
- **Jam-resistant, machine-to-machine connectivity**
- **Rapid target ID and engagement**
- **Precision effects against GS target array**
- **Real-time effects-based assessment**

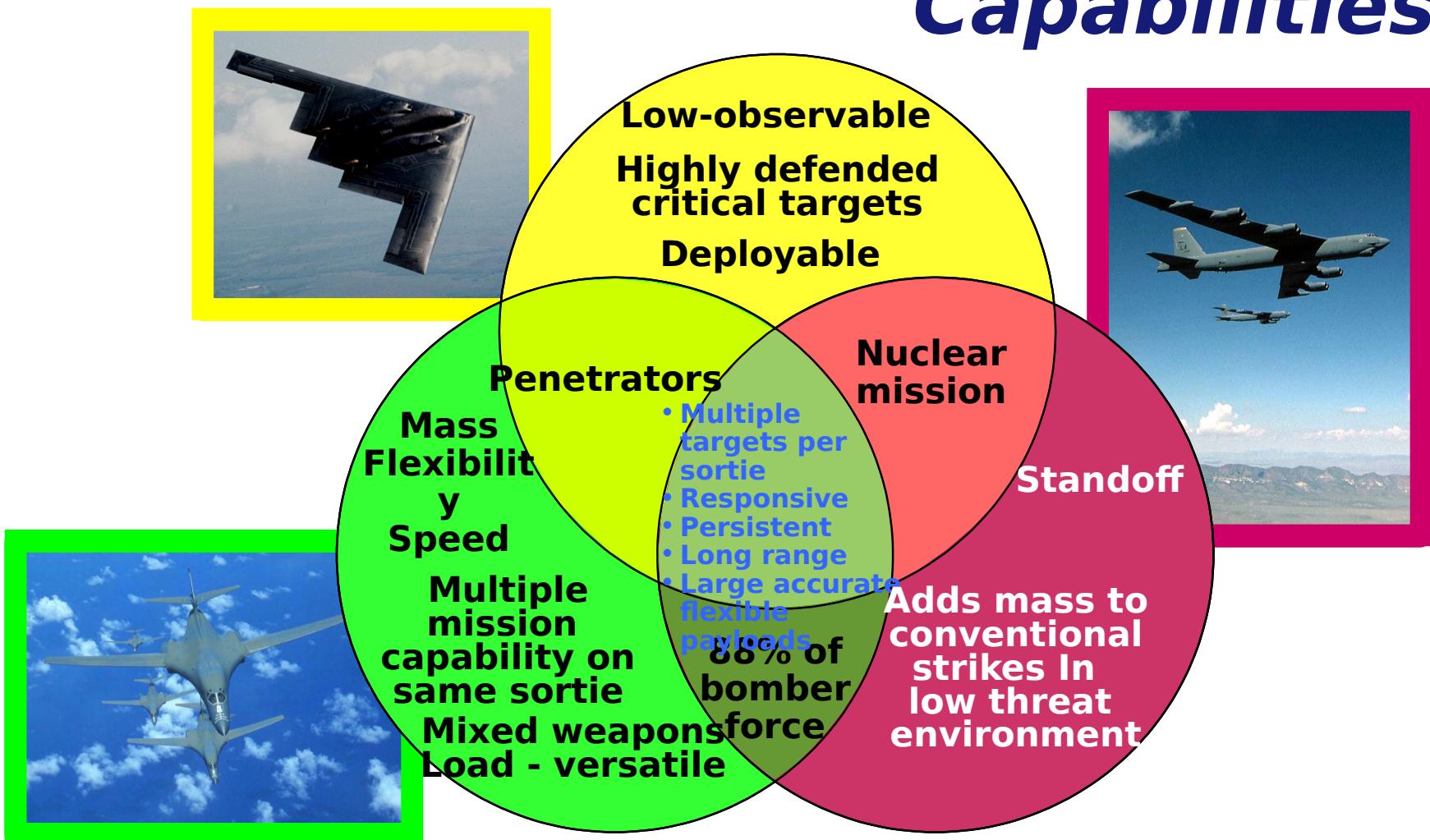




U.S. AIR FORCE

UNCLASSIFIED

Each Bomber Has Unique Capabilities





U.S. AIR FORCE

For Official Use Only

Air Force LRS Flight Plan (Concept)

■ Three-phased approach

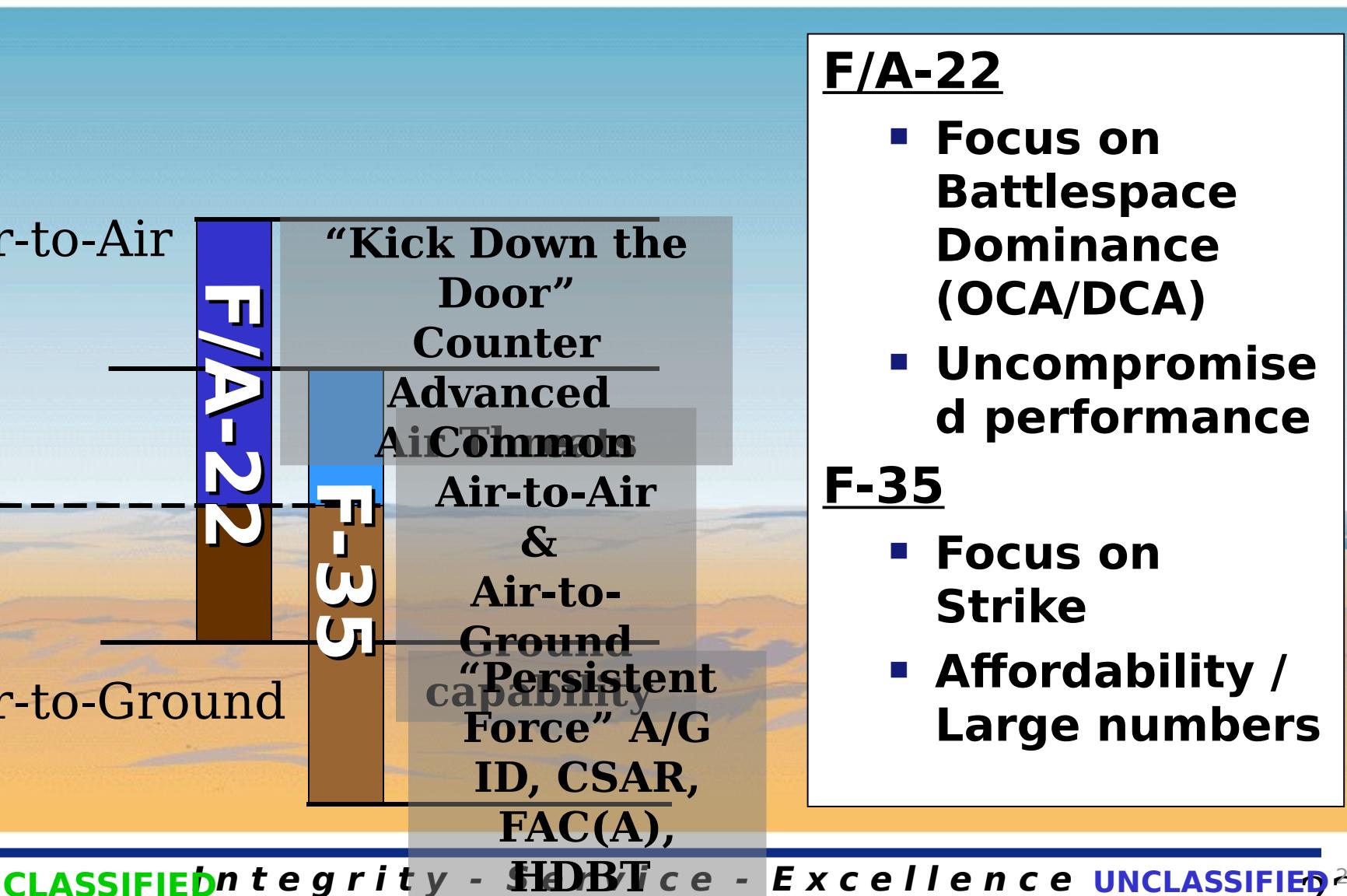
- **Phase I (Near Term): Continue with current investment strategy - combination of system and enabler improvements**
 - Modernize/upgrade current force to maintain operational relevancy
- **Phase II (Mid Term): Next Generation LRS -- Develop and field strike capability(ies) in the 2015-2020 timeframe with survivability/lethality improvements**
 - Need capability to penetrate advanced anti-access threats and strike in adverse weather, day/night based on current/near term technology
- **Phase III (Long Term): Develop and field transformational LRS capability(ies) using cutting edge technologies in the 2035+ timeframe**
 - Hypersonics, Directed energy, and “Exo-atmospheric” are technologies under consideration



U.S. AIR FORCE

UNCLASSIFIED

F/A-22 & F-35 Mission Domains





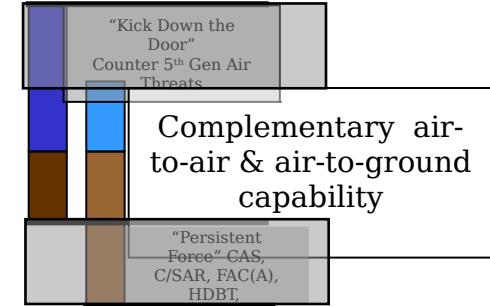
U.S. AIR FORCE

UNCLASSIFIED

UNCLASSIFIED

F/A-22 & F-35 Common Domain

- **How?**
 - **24/7 Stealth**
 - **Multi-mission**
 - **Interoperability - Linked to Infosphere**
 - **Advanced A/A and A/G weapons (Precision)**
- **Why Important?**
 - **Flexibility !!**
 - **Survivable vs Advanced Threat**
 - **Lethal - Persistent and Precise**

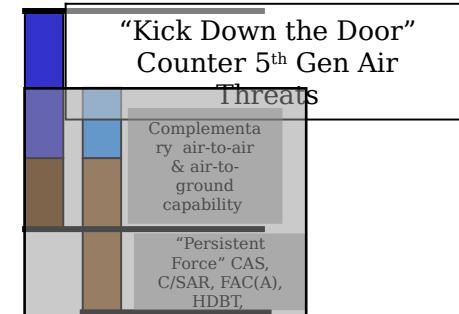




Exclusive F/A-22 Domain

U.S. AIR FORCE

- **How?**
 - **Speed (supercruise and Vmax)**
 - **Altitude (60k' ceiling)**
 - **Payload - 6 x 2 missiles**
 - **Maneuverability**
- **Why Important?**
 - **Enables all other Forces, both Legacy and F-35**
 - **Survivability**
 - **Sphere of Influence and Time to Engage**



AIR DOMINANCE

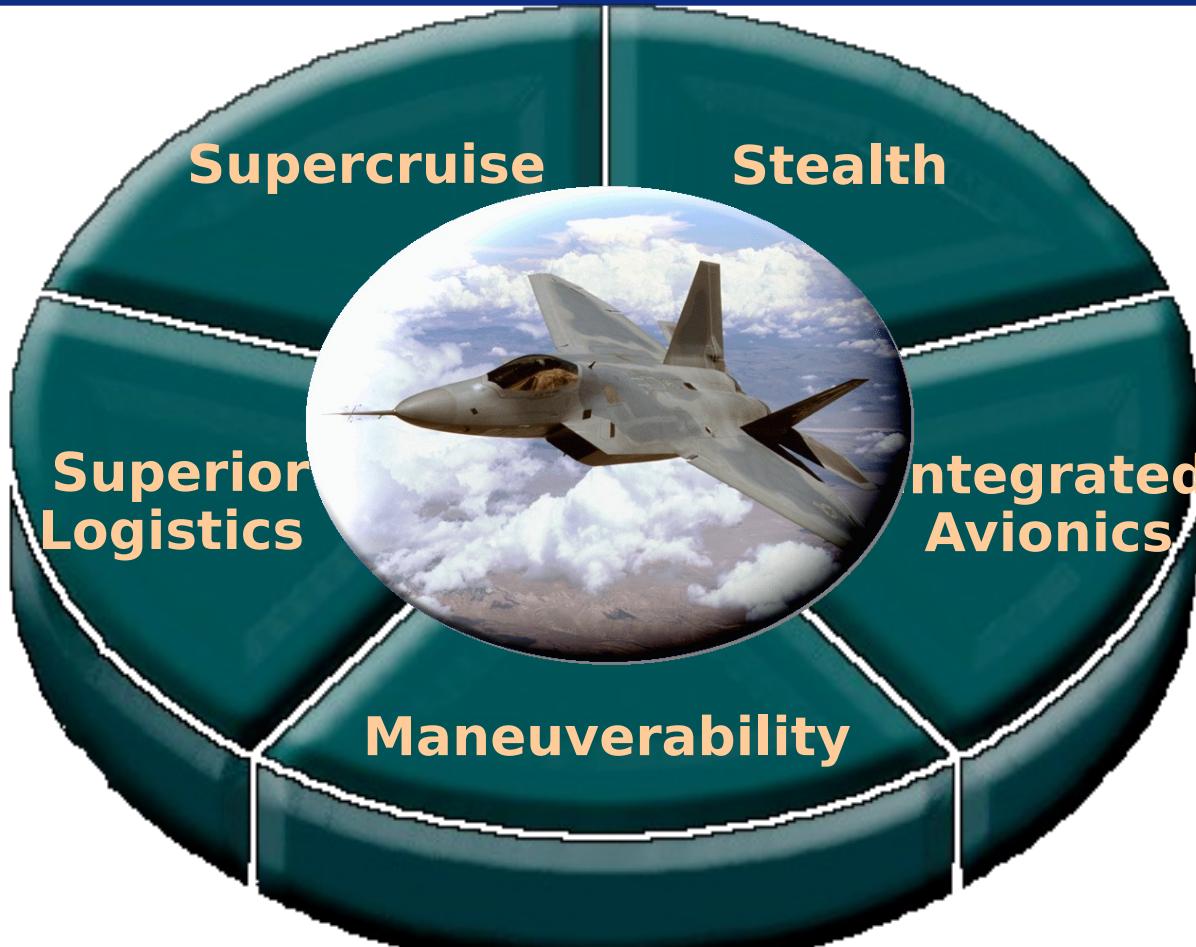


UNCLASSIFIED

UNCLASSIFIED

U.S. AIR FORCE

F/A-22 Baseline Capabilities



Raptor Technologies Enable Total Air Dominance



U.S. AIR FORCE

UNCLASSIFIED

Speed and Agility

Speed and Agility **enable** F/A-22:

- Better suited to deal with evolving air threat
- Better suited to deal with evolving ground threat
- **Supercruise:** Robs time from the enemy and increases the sphere of influence!



AIR DOMINANCE



The Air-to-Air Threat

U.S. AIR FORCE



How the F/A-22 Compares to the Emerging

	Today		2005		
	FULCRUM 	FLANKER 	TYPHOON 	RAFALE 	SU-35
Maneuverability	A	A	A	A	A
Radar detection	A	A	A	A	A
Range	A	P	A	P	P
Radar Cross Section	A	A	A	A	A
	F/A-22	Parit	F/A-22		
Advantage				Disadvantage	

Source: AF Assessment using DIA Foreign Aircraft Data

**The F/A-22 Regains the Ability to
Dominate**



Exclusive F-35 Domain

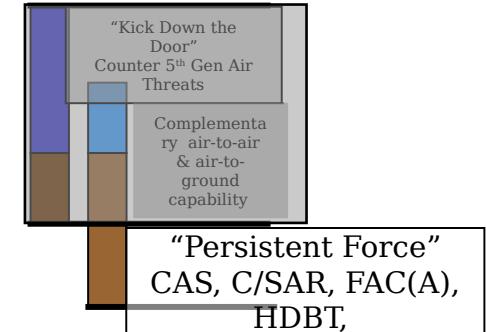
U.S. AIR FORCE

■ How?

- Unique A/S Avionics
- **Payload/Ordnance** - 2000# class A/S weapons
 - bay, wide-variety internal/external weapons,
 - “bomb truck”
- Quantity - 1763

■ Why Important?

- Survivable-stand off targeting
 - Real-time target ID
 - Minimize Fratricide
- **Lethal-precision engagement**
- Penetr
- **Persist**



PERSISTENT STRIKE

Establishing Access Through Air Dominance Early Land-Based



Joint CAF CONOPS Follow-on Operations



Headquarters U.S. Air Force

Integrity - Service - Excellence

Questions / Comments



U.S. AIR FORCE

UNCLASSIFIED

Overall classification of
this briefing is
UNCLASSIFIED

Headquarters U.S. Air Force

Integrity - Service - Excellence

Back-Up Slides



U.S. AIR FORCE

UNCLASSIFIED

Overall classification of
this briefing is
UNCLASSIFIED



U.S. AIR FORCE

UNCLASSIFIED

UNCLASSIFIED

Internal Payloads

F/A-22 Internal Weapons

Gun: M61 Cannon
480 rounds



Side Bays:

2 x AIM-9M/X

Center Bay:

3,150 lbs

6 x AIM-120
or
2 x AIM-120/
2 x 1000#

JDAM

or

8 x SDB

F-35 Internal Weapons

25 mm
~ 180 Rounds



Center Bay:

5,700 lbs

4 x AIM-120
or

2 x AIM-120/
2 x 2000# Class
(Area Wpns: WCMD,
etc)

or

8 x SDB



FOR OFFICIAL USE ONLY

UNCLASSIFIED

F/A -22 Modernization Program

IOC 4th Gen
U.S. AIR FORCE

IOC 4 th Gen		A-G Rdr IOC 4 th Gen CIP			Side Arrays Blk 20 Rdr Upgrade					
2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
FY05	FY06	FY07	FY08	FY09	FY10	FY11	FY12	FY13	FY14	FY15
Lot 3	Lot 4	Lot 5	Lot 6	Lot 7	Lot 8	Lot 9	Lot 10	Lot 11		

Modernization Candidates

Baseline Multirole F/A-22

- Increased Reach, Lethality
- Improve A/G, Update A/A
- Improved Deployability
- Combat Redundancy
- Enhanced Homeland

Spiral 2

- JDAM Supersonic
- Candidate 38
- PVI Update (LZIWG, CASEmitter)
- EP Update
- Chaff Fix
- Chaff Track Delete
- AS

Spiral 3A

- Machine-Machine Datalink
- A/G Radar
- ATD
- Geo.
- EA (THOR)
- SDB (Basic)
- Link-16 TX (Basic)

Spiral 3B

- LK-16 TX Full
- SDB Full
- GATM/SAASM
- Mode 5 / S
- Enh Data Rcrd
- GMTI
- AIM-9X

- Full Spectrum Dominance
- Freedom From/To Attack

Global Strike Full

- Deny Enemy Awareness
- Full-Spectrum SEAD/DEAD
- Enhanced Precision,

Spiral 4

- Enhanced ISR
- Moving Tgt Attack
- Enhanced NCW
- Enh Lethal
- SEAD/AEA
- Expnd emitter
- Enh A/G - Precision, Wpns, HM Sit
- Display

- Battlespace Awareness
- Info Superiority
- Reduced Enemy

Enhanced ISR

- Smart IW
- Increased Target Set
- Enhanced Lethality
- Enhanced Deep Strike
- Fully Networked
- Net-Centric A/G Sensors
- Net-Cent SEAD, AEA
- Full ISR Integration
- LO compat ext range
- OTH connectivity
- LO Enhancements

Block 20 (56*)

Block 30 (91)

Block 40 (121+)

6 Jan 2004
ACC/DR-FA22*Not incl
Test Assets

UNCLASSIFIED

31



FOR OFFICIAL USE ONLY

UNCLASSIFIED

F/A-22 Modernization Program

(Proposed--Draft)

U.S. AIR FORCE		4 th Gen Rdr J MPS		CNI		MF		Blk 20 Rdr Upgrade			
FY05		FY06	FY07	FY08	FY09	FY10	FY11	FY12	FY13	FY14	FY15
Lot 3	Lot 4	Lot 5		Lot 6	Lot 7	Lot 8					
Battlepace Effects	Deliver & Retrofit Air Dominance	• Access • Freedom to Maneuver			Enhanced Air Dominance	• Enhanced Access • Rapidly Neutralize High-Value Targets • Enhanced Homeland Security			Air & Information Dominance	• Collect, Control, Exploit Information • Reduced Enemy Sanctuary	
Warfighting Capabilities	Spiral-2 - Global Strike Basic	• Improve A/G • Update A/A • Enhanced Connectivity • Basic ISR		Spiral 3 - Global Strike	• Seek/ Destancy Adv SAMs, TST • Basic IW - Anti Shooter EA • Enhanced stand-off, multiple gnd tgts • Enhanced NCW and ISR • Moving targets			Spiral 4 - ISR / Global Strike Full	• Deny Enemy Awareness • Moving/Buried Targets • Enhanced Precision, TCT, ID • Advanced ISR and NCW • Worldwide Interoperability	Notional Candidates	
Modernization Candidates	<p><u>OPF 20.2.1</u></p> <ul style="list-style-type: none"> JDAM Supersonic Chaff Track Delete IFDL Widenet LZIWG Candidate 38A Chaff Fix OTH Data Transfer 	<p><u>OPF 30.3.1</u></p> <ul style="list-style-type: none"> Air to Gnd Radar JDAM self target SDB Basic Abn Ntwk Xmit Elec Atk-THOR Emitter Geo 2 	<p><u>OPF 30.3.2</u></p> <ul style="list-style-type: none"> SDB Full Cand 38B Geolocate 3 / 3A AS Auto GCAS SAASM Enhanced Data Rec MFR AIM-120D 		<p>UNCLASSIFIED</p> <p>Integrity</p> <p>FOR OFFICIAL USE ONLY</p> <p>11 enc e</p> <p>13 Apr 05 ACC/DR-FA22</p> <p>35</p>						